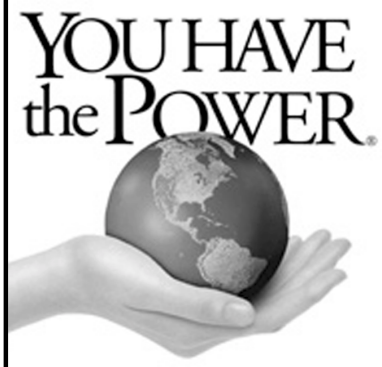
Revision 1

Revised Handbook for

Promoting Behavior-Based Energy Efficiency in Military Housing



Prepared for the
U.S. Department of Energy
Office of Energy Efficiency and Renewable Energy
Federal Energy Management Program

Prepared by
Pacific Northwest National Laboratory
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March 2000

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Contents

Preface

The mission of the U.S. Department of Energy's Federal Energy Management Program (FEMP) is to reduce the cost of government by advancing energy efficiency, water conservation, and the use of solar and other renewable technologies. This is accomplished by creating partnerships, leveraging resources, transferring technology, and providing training and technical guidance and assistance to agencies. These activities support requirements stated in the Energy Policy Act of 1992 and goals established in the June 1999 Executive Order 13123.

To bolster energy awareness across the federal government, FEMP launched a communications campaign entitled "You Have the Power" in 1997. This campaign assists federal energy managers by spreading the word about energy-efficient practices and products, as well as facilitating partnerships with energy-related organizations in the private sector. The campaign is intended to instill energy efficiency as a basic value among federal workers and the public.

The Pacific Northwest National Laboratory (PNNL) supports the FEMP mission in all activity areas, including the "You Have the Power" campaign. Specifically, PNNL is working with FEMP to develop methods for promoting energy efficiency in federal facilities. In doing so, the cost of government can be further decreased.

This handbook suggests ways federal energy managers can take the "You Have the Power" campaign one step further: to develop site-specific activities that encourage residents of military family housing to use energy more efficiently. The approach and examples provided in the handbook are based on two campaigns conducted for FEMP—one at the Fort Lewis Army Installation in Washington State and the other at the Marine Corps Air Station in Yuma, Arizona. This revised handbook reflects insights from the final energy data and resident survey results from the two campaigns.

Acknowledgments

This handbook benefits greatly from lessons learned from energy-efficiency campaigns conducted at Fort Lewis Army Installation, near Tacoma, Washington, and the Marine Corps Air Station, Yuma, Arizona, in 1998 and 1999. The campaigns were a cooperative effort between the U.S. Department of Energy's Federal Energy Management Program (FEMP), Fort Lewis, and the Yuma Air Station.

Annie Haskins, Outreach Program Manager for FEMP, provided guidance and assistance. FEMP's Tatiana Muessel provided early guidance and direction.

In conducting the campaign at Fort Lewis, we are indebted to contributions from Fort Lewis's Department of Public Works, especially Resource Efficiency Manager Charles Howell, personnel from the Base's Housing and Training departments, mayors, and of course the residents themselves. At the Yuma Air Station, we thank Housing Manager Mark Smith, Assistant Housing Manager Pat Queen, and Energy Manager Ron Durfey and his Energy Monitors Gunnery Sergeants Dale Billingsley and Daniel Drier. We also thank Anne N'Ait Ali and her Family Childcare Providers Network for their insightful comments and assistance.

We thank energy science professionals at Pacific Northwest National Laboratory for technical assistance, guidance, and review. We thank Merrilee Harrigan, the Alliance to Save Energy, for review and suggestions. We thank Judi Heerwagen, former Laboratory staff member, for early direction. We also appreciate Washington State University Cooperative Extension Program's Energy Ideas Clearinghouse for making additional resources available to us.

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Regina Lundgren
Elizabeth Malone

Pacific Northwest National Laboratory
March 2000

1.0 Introduction

This revised handbook was prepared as part of a government energy-efficiency program with emphasis on military housing, as described below.

1.1 Background

The U.S. Department of Energy's Federal Energy Management Program (FEMP) helps agencies reduce the cost of doing business through energy efficiency, water conservation, and the use of solar and other renewable energy. As a large energy user, the U.S. Department of Defense (DoD) has been one of the government sectors of focus.

Several military installations have shown substantial energy savings since 1985. Most of these efficiency projects, however, have focused primarily on physical upgrades, technologies, and purchasing habits. Further, most projects have focused on administrative and operational areas of energy use.

The energy-related behaviors of residents in military housing, in particular, have received little formal attention. Behavior-based change is a challenging, but potentially fruitful area for energy conservation programs. Efforts to change behaviors involve links with values, social networks and organizations, and new ways of thinking about living patterns. This handbook attempts to fill a gap by offering guidance for promoting such efforts.

This revision of the handbook reflects insights from the final energy data and resident survey results from two campaigns.

1.2 Purpose and Audience

This brief handbook is intended to be used by energy managers, housing officials, and others who want to improve energy efficiency in on-base residential housing by emphasizing behavioral changes.

Specifically, the handbook was written with two primary groups of people in mind: 1) military personnel and contractors, and 2) nonmilitary organizations and groups, including Department of Energy employees, utilities, contractors, energy coalitions, and universities.

1.3 Scope and Use

The guidelines here are based on low-cost or no-cost behaviors that residents can carry out themselves, as opposed to physical facility upgrades or technology. The guidelines are particularly applicable to situations where residents do not pay their own utility bills and thus are not motivated to conserve energy by reducing personal expenditures.

The guidelines have been applied in field studies conducted at the Fort Lewis Army Installation in Washington State and the Marine Corps Air Station in Yuma, Arizona. However, the guidelines are intended to be

broad enough to apply in other situations. Individual bases should choose and adapt their own activities to fit their unique situations.

For quick reference and ease of use, each section ends with a short list of highlights, called "In Summary." These highlights represent the essential kernels of information necessary for planning, designing, implementing, and evaluating a campaign.

1.4 What the Handbook Contains

The handbook describes some factors driving energy efficiency in military housing and characteristics of military bases that affect residential energy use (2.0). Following sections describe steps in planning (3.0), conducting (4.0), and evaluating (5.0) a campaign and sustaining the effort (6.0).

The appendixes provide sample information materials, surveys, and other resources.

2.0 Energy Efficiency in On-Base Military Housing

With literally thousands of facilities nationwide consuming significant amounts of energy daily, why is military housing a particular area of focus? And how might military housing residents be motivated to use energy efficiently? The drivers and the unique characteristics of military populations need to be understood in order to design an effective energy-efficiency campaign.

2.1 Drivers

Several factors make military housing a prime target for energy conservation:

Regulatory, policy, and institutional factors are driving the effort to reduce energy use in military housing.

- **Regulations and federal targets for energy conservation are set in federal facilities.** The federal government has set goals of a 30% reduction in energy consumption from 1985 levels by fiscal year 2005. In June 1999, a Presidential Executive Order extended this goal to a 35% reduction in federal facilities by 2010 from 1985 levels.
- **Congressional and public scrutiny has increased taxpayer-funded military programs.** Over the past several decades, the DoD has been held to increased standards of accountability, both by its funding source (Congress) and by citizens who pay for it and whose loved ones serve in it. The June 1999 Executive Order 13123 for energy efficiency, for example, included more stringent standards of accountability by federal agencies to reach energy goals. The Executive

Order requires each federal agency to submit an annual report to the President describing its progress in meeting energy reduction goals, and the Office of Management and Budget will evaluate each agency's performance using "score cards" that are submitted to the President. The President's Management Council will monitor agencies' progress on energy management and identify ways to accelerate improvements. The military, being one of the largest energy users among federal agencies, is a particularly high-visibility target.

- **Energy use in residential housing is a substantial portion of total base energy costs, representing an often-untapped source with large potential savings.** The DoD is the largest energy user of all federal facilities, according to the DoD's Annual Report to the President and Congress for 1999. And, at military bases, residential housing often represents a substantial portion of the utility budget. At the Fort Lewis Army Installation, for example, residential energy use accounts for 25% of the base's total energy use and 40% of base energy costs. Most energy-efficiency projects on military bases have focused on reducing usage in administrative and troop barracks areas rather than family housing units. It makes sense, therefore, to include military residential housing as a particular area of focus to meet federal energy-efficiency goals.

At some bases, residential housing accounts for 40% of total base energy costs. This represents an opportunity for substantial energy savings.

2.2 Characteristics of Military Bases and Populations

An effective energy-efficiency campaign is designed around the unique characteristics of military bases that affect residential energy use and conservation programs:

- **No direct utility bills to residents.** Many military housing areas are still master-metered, where all or large portions of residential housing areas are billed together. In these cases, residents do not pay their individual energy bills based on individual usage. Instead, a set amount of their housing allowance is dedicated to energy use, regardless of how much is actually spent. This situation means that residents have less incentive to conserve energy because they can neither save money by reducing their own use nor are they "penalized" by being charged more if they use more. This master-metering also makes it more difficult to promote conservation, even if a savings for an entire master-metered section is displayed, because it is impossible for people to know how much their own family contributed (or did not contribute) to the savings.

  The military and Congress have been moving toward privatization of military housing and utilities on the assumption that private-sector management will increase efficiencies and reduce costs. Privatization, however, may not address energy billing to individual homes.

- **Transient nature of personnel.** According to the DoD's DefenseLINK web site (www.defenselink.mil), military families move every three years on average. Frequent relocation presents a challenge for behavior-based

energy efficiency. If organizers are relying on people to be aware of the need to conserve energy and get into the habit of doing so, these behaviors must be reemphasized and relearned every so often with each new wave of residents, or the behaviors will not continue. This means a sustained effort—really what is needed is institutional change—that is ingrained into behavior regardless of where families move.

- **Varying housing quality that affects energy loss.** Housing units on many military bases were constructed decades ago, some dating back to World War II. According to the DoD's Annual Report to the President and Congress for 1999, two-thirds of the agency's 297,000 existing housing units are in need of extensive repair. Houses may be undergoing continual upgrades, and newer homes have more energy-efficient features. However, at any one time, families may be living in houses with inefficient energy features such as single-paned windows, inadequate insulation, nonprogrammable thermostats, or inadequately sealed doors and windows. In these homes, energy efficiency will be limited by structural deficiencies, and resident behavior can accomplish only so much.

- **Limitations on upgrades.** The military must carefully budget for and schedule housing upgrades while maintaining a consistency in housing conditions for its constantly changing residents. These restrictions can affect energy efficiency. For example, like civilian renters, many military families are restricted in upgrades they themselves can make to improve energy efficiency. For example, a base may not allow residents to install plastic sheeting on windows to improve insulation.

  In addition, a base's housing budget at any one time may pay for some things to do be done, but not others. For example, a base may pay for defective caulking around windows to be replaced, but not for caulking to be installed where none existed before. A base may pay to have a broken thermostat repaired but not replaced with a programmable one.

- **Chain of command and accountability.** Instituting a campaign on a military base is somewhat like mounting a campaign inside a large corporation that has many layers of approval and external oversight. The entire campaign usually requires the endorsement and involvement of one or more organizations, such as Housing, Public Works, and Energy Management. The approach, activities, and information materials must all be carefully reviewed and approved through the proper channels. Any financial incentives, of course, must be approved at appropriately high levels.

  Costs and/or time provided by the base for activities or materials are carefully scrutinized to ensure that they fit within the base's mission and can be justified as a worthy use of taxpayer dollars. Base officials are increasingly being held accountable for meeting energy-efficiency goals, and it is important that the base's investment in a campaign pays off in significantly decreased energy use.

People are more likely to take action when they hear that their neighbors and friends are doing the same things. Existing military social structures, such as recreational and educational groups, can serve as excellent tools.

- **Institutionalized family and social support structures.** In the interest of supporting the well-being of troops and their families, most bases have extensive family and social support structures. These include programs for educational, social, spiritual, and recreational well-being. Many of the same programs enjoyed by civilians, such as Scouts, clubs, and recreational groups, are supported on military bases.

  Studies have shown that people are more likely to engage in long-term behavioral change when their neighbors and friends also engage in the behavior. These social structures can serve as excellent tools for designing and carrying out a campaign that is institutionalized across the base.

- **Competition.** Studies have shown that competition among similar groups improved workplace performance. The culture of competition that is ingrained into the military can be tapped into for a campaign.

  However, the frequent turnover in military housing may mean that competition in that setting may not be as effective as competition in professional military activities. It may be that competition between branches of the armed services would be a better source of motivation than competition among neighbors or neighborhoods.

- **Patriotism.** Patriotism, endemic in the military, can be an underlying message in a campaign, in terms of national goals and conserving our nation's environmental resources. In fact, it has been argued that practicing energy conservation in the United States makes us less vulnerable to worldwide oil crises that might prompt military intervention.

- **Desire to do the right thing**. Researchers mention this explicitly as a characteristic of military communities. Housing residents at Fort Lewis and MCAS Yuma described themselves as motivated by their desire to do the right thing and to set an example for their children.

The patriotism of military personnel can be a source of appeal. Conserving our nation's environmental resources makes us less vulnerable to worldwide oil crises.

2.3 In Summary: Energy Efficiency in On-Base Military Housing

Consider the following factors to help put energy efficiency in context in a military housing setting:

- **Regulatory, policy, and institutional factors** are driving energy-efficiency efforts in military housing.
- Congressional legislation and Presidential Executive Orders mandate specific **energy reduction goals in federal facilities**, with greater accountability for meeting efficiency goals.
- **Military housing** represents a significant portion of military energy use and thus potentially significant savings through conservation.
- The military embodies certain **cultural and institutional factors** that must be considered in any energy conservation campaign.

- **Factors that make energy conservation more challenging** are (1) residents not being billed for their own energy use, (2) transient nature of personnel, (3) varying housing designs and limitations on improvements, and (4) chain of command requiring approval of various campaign aspects.
- **Factors that can work in favor of energy-efficiency campaigns** include (1) institutionalized family and support structures, (2) a culture of competition, (3) patriotism, and (4) the desire to "do the right thing" and set a good example for children in the home.

3.0 Planning the Effort

In deciding whether to launch an effort at a certain base, consider whether the necessary resources are available there. If the appropriate resources can be marshaled, decide how you will approach the effort.

For simplicity, this handbook uses the term "campaign" to represent all energy-efficiency efforts of limited duration.

To offset the lack of individual billing for utilities, one incentive is to return to residents a portion of money from energy saved.

3.1 Resources Required

The following elements should be in place for an effective campaign. Of the listed items, the most important is enthusiasm of a person or people who can pull together resources and get things done at the site.

- **Approvals and champions.** Base officials from the affected divisions must give permission for the effort. These would include, as a minimum, the site commander, the energy manager, the housing office, and the office that deals with military personnel and family life. It is important that these officials understand which resources they are committing, especially those involving funds, personnel, and other resources from their divisions.

  The appropriate people in the chains of command must be on board and be willing to pass information through their commands as appropriate.

  Beyond merely approving the effort, a high-level, well-respected base official should personally "champion" it. This means he or she endorses it, perhaps even serving as a spokesperson. The involvement of this high-ranking official demonstrates the importance of the effort to residents, as well as a top-down commitment to energy efficiency.

  A logical candidate to champion energy efficiency is the base's Energy Manager. At Yuma MCAS, the Energy Manager was well liked and respected—and had won awards for energy efficiency. In addition, a base Energy Monitor toured the base (on a bicycle) to visually check energy-use practices.

- **Funding.** If not funded by an outside grant or project, or not part of existing on-base jobs, the base must

be willing to fund certain activities associated with a campaign. Buy-in

from the base in the form of in-kind support demonstrates a commitment to the campaign. In-kind support may include producing and distributing information, conducting surveys, and collecting and analyzing energy-use data. A budget describing each expense and its purpose should be approved by all funding sources in advance. Appendix A gives examples of typical budget items.

- **Incentives.** Most behavior-based campaigns will not be effective without incentives and perhaps disincentives. For example, the base may decide to give a portion of money saved back to residents, or some other incentive award. Residents who "overuse" an energy allotment could be required to pay for the extra usage, or not receive some sort of "perk" that other users get. Obviously, base officials must designate and approve these incentives and disincentives, especially when money is involved. If a portion of money from energy saved is being given back to residents in some way, the base must also ensure that the funds can be transferred from the utility account to an account that benefits residents directly.

- **A team with specialized skills.** A team of people must have adequate time and resources available to design and execute the campaign. Team members should have strong communication skills and the ability to work well with people, including high-ranking officials. Members should also be experienced in field research, conducting focus groups and interviews, developing activities, producing targeted information materials, and evaluating results. One or more team members should be experienced in graphic design.

  If this experience is not available on base, a consultant could help train and guide an on-base team. However, a core group of on-base team members is essential to any site-specific campaign.

- **Access to communication channels and production capabilities.** Communicating during a campaign requires access to channels of communication and production resources. Someone on the team needs access to media (newspapers, newsletters, radio, closed-circuit TV, electronic billboards), as well as any specialized methods for communicating with residents, such as community meetings.

  Depending on the campaign's specific activities, facilities and capabilities must be available for producing printed materials, displays, and videotapes. Special activities could include printing of T-shirts, Scout badges, banners and flags, educational materials for schools, and so forth. Access to a high-quality computer system and software will enable printed materials, including graphics, to be easily produced, updated, and digitally translated so that the same art can be used for a variety of materials.

  Many bases already have these resources in their Public Affairs and Training Divisions; however, the proper facilities and approvals for producing campaign-specific information must be in place.

- **Residential leaders who are willing to volunteer time.** The more involved residents are in the campaign's design and implementation, the

greater potential for success. A core group of interested and willing residential leaders should be identified at the outset. Mayors or others in positions of authority—including leaders of educational organizations, clubs, and day care providers—can be excellent resources. They can help design the campaign, help convene focus groups and host interviews of residents, communicate with other residents about the campaign as it continues, hand out materials, serve as points of contact for the campaign, and serve as behavioral role models for other residents. They can also alert campaign organizers of any difficulties and problems with the campaign as it progresses, so that corrective action can be taken.

- **Links with institutional groups.** Studies have shown that social groups can be influential in encouraging behavioral change. The importance of enlisting community leaders has already been mentioned. If the campaign involves organizations such as schools, community groups, or Scouts, points of contact and approvals must be in place. These groups may require additional resources such as educational materials tailored to their groups. The team must be willing to sustain a high-quality outreach with these groups, meet their needs, and have regular contact with them to ensure that campaign goals are being met.

- **Evaluation mechanism.** Someone on the team must have access to, and the ability to understand, energy-use data over the campaign time period, including previous energy-use data if comparisons are being made. The data must be available, or calculable, at the level and in the form that are useful for analysis. Useful data include savings in energy units—such as therms or MBtus—as well as cost savings to the base. Other variables to watch include energy use by geographic area on the base (such as neighborhoods), demographics of residents (such as officer versus enlisted housing), house type, and energy type (gas, electricity).

  When making comparisons over time, someone must be able to calculate how weather temperatures affect energy use. In other words, a base can not take credit for a drop in energy use if it can be attributed to warmer or cooler temperatures and thus lower energy demand.

Resources for evaluating the campaign via resident input should also be available. For example, if a survey of residents will be conducted, someone must have access to mailing lists and approval to use them. In addition, resources and approvals must be in place to send and receive mass mailings as well as enter and analyze survey data. If a mass survey will be conducted, it is helpful to have data-analysis software designed for that purpose.

3.2 Options for Approaches

There are three options for an energy-efficiency effort: (1) a short-term campaign, (2) a kickoff campaign coupled with a longer-term emphasis, or (3) an ongoing endeavor. This section gives guidelines for each approach.

- **Short-term campaign.** A limited-term campaign of less than one year is

useful when testing approaches and activities specific to a particular base. For example, a base may mount a three-month campaign emphasizing certain energy conservation activities tailored to that base, certain information and social channels, and certain incentives for residents to encourage energy efficiency. At the end of the campaign, the managers compare energy use and get feedback from residents to determine which activities and approaches were useful and why or why not. The results can be used to design a longer-term campaign tailored to that base.

Short campaigns may also be useful for educational efforts. For example, say a base has just upgraded all its residential heating to use programmable thermostats that require proper programming and use by residents. A short-term campaign may be useful to emphasize the benefits and steps of proper thermostat use.

Short-term campaigns may also be useful periodically as personnel change. For example, if the population of residents has significantly changed over two years, a short campaign could be run every two years to reemphasize and motivate energy efficiency.

A festival or other celebratory event is a good way to kick off a campaign.

- **Kickoff campaign.** A campaign can also be used to "jump start" a longer-term emphasis. Used in this way, the campaign raises awareness and attention to start a more sustained effort.

  A kickoff campaign attempts to attract widespread attention. If resources are available, a festival or other celebratory event could be held, prizes could be given out, a competition could be announced, a high-profile speaker could be brought in, and local media could be invited to cover it. The sustained effort, lower key, would continue with continued reporting of results and reminders.

  A potential drawback of this approach is the possibility of high interest and action at the beginning that tapers off. Organizers should aim to create sufficient motivation to continue the energy-efficient behaviors after the initial kickoff.

  Another factor to consider with this approach is personnel turnover. With residents coming and going, it is important to make sure that the longer-term emphasis continues to reach newcomer families.

- **Ongoing effort.** Persuading people to change their habits, especially when people feel that they are being asked to give up something, is quite difficult—as designers of anti-smoking and seatbelt-wearing campaigns can attest. Nevertheless, the ultimate goal of any energy-efficiency effort is to sustain long-term change.

  A long-term effort focused on permanent behavior change is most effective when base officials are personally committed to and accountable for energy savings, when methods exist to measure energy use for each residence, when financial incentives and disincentives are directly tied to individual energy use, and when a longer-term effort is preceded by a test campaign (as described above).

Section 6.0 recommends ways to aim for a sustained effort.

3.3 In Summary: Planning the Effort

Consider the following factors in the planning phase:

- With the proper base approvals in place, the most important resource is the presence of an **on-base champion**(s) who has the willingness, time, and authority to pull together resources and get things done.
- **Other important factors** are funding, incentives, a team with specialized skills, access to communication channels and production capabilities, residential leaders who are willing to volunteer time, links to institutional groups, and an evaluation mechanism.
- An energy-efficiency effort can take one of three **approaches**: (1) a short-term campaign, (2) a kickoff campaign as part of a longer effort, and (3) an ongoing endeavor.

4.0 Designing and Executing a Campaign

After a team is convened and resources are secured, the campaign can be designed and carried out. The guidelines in this section should be adapted as necessary to fit particular sites and situations.

4.1 Establish Goals

Goals are the ultimate desired outcomes. In a behavior-based campaign, a typical goal is to get residents to modify their habits so that energy use is reduced by a certain amount over a specified time period. The target amount of reduction can be based on a variety of factors, including federal energy goals, base energy goals, or behavior-based energy reductions achieved in other areas of the base.

Set goals that identify the desired outcomes. Set measurable objectives that help achieve the goals.

Another goal may be to reduce energy costs over a certain time period. Be aware, however, that reduced costs, though desirable, may not necessarily mean reduced energy use. Reduced costs could reflect reduced gas or electricity rates even when the same, or more, energy is expended. Thus, one of the campaign's goals must be actual reductions in energy use, not simply lower expenses to the base.

Set campaign goals while keeping in mind available resources and time to carry out the campaign. Getting people to change their behaviros is challenging and usually requires time to make the behavior a habit. It would be unrealistic, for example, to expect residents to use 20% less energy over a three-month time period based solely on personal behavior change.

When setting the goals, keep in mind how they will be measured. Factors that may affect energy use, including weather, housing upgrades, occupancy, and turnover, will need to be accounted for when determining whether the target goals were achieved. Section 5.0 discusses evaluation in more detail.

4.2 Establish Objectives

Develop objectives that help achieve the campaign goals. In a behavior-based campaign, objectives could include increasing the percent of people who engaged in certain behaviors, such as the following:

- kept their thermostats at a certain level when the house was occupied and at night
- requested energy audits or other in-home visits
- signed a commitment form promising to do certain things
- eeplaced incandescent lights with compact fluorescents
- turned off their outside lights during the daytime
- replaced their furnace filters monthly
- filled out home energy checklists with their children.

Make sure you have a way to measure these behavior changes before you set them as objectives. Some changes, such as outside porch lights being turned off, can be directly observed by people whose job it is to monitor energy use. The number of audits requested by residents can be tracked. Items purchased at base commissaries and PXs can be tracked, such as compact fluorescent bulbs and furnace filters.

For many behaviors, however, residents must be asked directly what they are doing differently as compared with the baseline period before the campaign started. Getting feedback that represents a good cross section of residents usually requires a survey, as described in Section 5.2.

4.3 Set a Budget

In the planning stages, a preliminary budget may be all you need. Then, after campaign activities are better defined, you may need to develop a detailed budget to be approved by base officials. You should establish the budgets and obtain approvals early in the process.

The budget must cover all labor, materials, production, distribution, activities, and monetary incentives, if any. Appendix A shows typical budget items.

A budget may be predetermined by the base's resources, or it may be somewhat negotiable. Some services and materials may be donated by the base, local utilities, government organizations, and even local universities as student projects. In addition, certain services, such as creating training videos, may be part of the base's existing mission and thus covered under other budgets.

Base officials may ask you to document the return on investment—the cost of the campaign versus the amount of reduced energy costs you hope to achieve. If the costs of carrying out a campaign significantly exceed the expected energy cost savings, you may have a tough time defending your plan.

The budget for an energy conservation effort must cover all labor, materials, production, distribution, activities, and monetary incentives, if any.

4.4 Set a Schedule

A campaign schedule is necessary to keep the work on track. It also keeps the team from missing certain time-dependent events such as school schedules, Energy Awareness Month (October), or base community fairs. It also takes advantage of times when base populations are more likely to be performing certain behaviors that the campaign is targeting for change (for example, starting just before the heating or cooling season).

Depending on how energy usage statistics are tallied at a given base, there may be a delay before statistics such as monthly meter readings and billings are available. If so, factor this into the schedule. For example, if final campaign results have been promised in December, but energy statistics are available 30 days after the previous month, you will need to end the data collection with November's results, or even October's, so you have time to tally the results and conduct a survey, if necessary.

Some aspects of a campaign schedule may be somewhat inflexible. The endpoint may be set by the budget running out at the end of a fiscal year. The endpoint may be set by the base's previous energy goals or driven by federal goals. If you have flexibility in setting the endpoint, keep in mind that a campaign targeting several behaviors for large base populations can take a minimum of six months to get visible results, with a year being a more reasonable time frame.

You may wish to set the schedule by starting with the endpoint and working backward. With this approach, determine how much time it will take to complete each step before the endpoint. This sequence will determine when the campaign needs to begin. This exercise will reveal any schedule problems, where planned activities must be deleted or modified to fit into a timeline.

4.5 Understand Your Base Setting by Talking with Residents and Officials

Use the input and ideas of residents to design the campaign for a particular base.

The most successful campaigns are tailored to the specific military base, using input and ideas from residents themselves and emphasizing the things residents are allowed to do themselves and those for which the base will pay. Thus, organizers should fully understand the base's policies and practices before starting a campaign, to become aware of what can and can't be done by residents.

Using input from residents to design the campaign is important for three reasons. First, it ensures that the campaign's content, themes, activities, and communication channels are valid for that population. It does no good to emphasize proper use of air conditioners, for example, if a base is located in a temperate climate that rarely requires air conditioning. If residents resent energy auditors coming to their homes without being requested, don't make this a campaign activity. If the residents seem particularly receptive to education activities that involve children, this could become an emphasis. And if residents tell you they get most of their

information through newsletters and newspapers, radio can probably be eliminated as a communication channel.

The second reason to involve residents is that more involvement up front encourages more buy-in and participation as the campaign gets under way. If residents have been involved in designing the campaign, they are more likely to feel a part of it and want it to succeed. Another way to view this is to consider the opposite effect. Without their input, residents may well perceive a campaign as another imposition by the military bureaucracy ("They're telling us what to do again"), designed to deprive residents of personal comfort or convenience. Residents with this attitude are more likely to resent the campaign, ignore it, or even sabotage it.

The third reason for involving residents up front is to gain individual contacts that can be drawn upon as resources for the remainder of the campaign. Because these people have already expressed enough interest to contribute ideas for the formative phase of the campaign, they may be willing to continue to contribute in other ways later. For example, you may call on them later to help distribute information, participate in events, contribute energy-saving tips for publication, help develop educational programs, poll their neighbors, and other such activities.

To gather background information from residents, small discussion groups (focus groups) are helpful. It often works well to include the focus group discussion as an additional agenda item for an existing community meeting or other such event. That way, you don't have to seek focus group members, schedule a meeting time and location, or advertise the meeting; someone else has already done that for you.

Focus groups and informal interviews are good ways to gather background information, test slogans and logos, and identify feasible behaviors to target for the campaign.

The following general questions for focus groups can be adapted for particular sites:

- What's the best way to get people interested and involved in saving energy?
- What are the best ways to communicate project results?
- How should energy conservation progress and results be depicted?
- Here are some things we're asking people to do to use energy wisely. Are any of these unreasonable or not doable? If so, why?
- Would you be interested in being in a training video/participating in other events/etc.?
- Do you have any other suggestions for us as we plan this campaign?

You can also use the focus groups to brainstorm and select campaign themes, slogans, and art. Appendix B, for example, shows a logo (light bulb containing a dollar sign) and a slogan ("Smart Energy Use") selected by Fort Lewis residents for an energy-efficiency campaign.

In addition to talking with residents, it is important to get input from base officials who are responsible for housing and utilities, including housing maintenance. You will not want to tell residents to adjust their own water

heater temperatures, for example, if housing authorities have determined that the switches are close to high-voltage wires and thus present a safety hazard. Base officials can also clarify what residents are responsible for purchasing and what the base provides, such as weatherization materials, solar-screening films for windows, furnace filters, and compact fluorescent lights.

Personal interviews are the best format for getting input from base officials. You can ask them the same questions as the residents. An additional question for officials is, "Are there any constraints or additional necessary approvals we should be aware of in carrying out this campaign?" And, as mentioned, verify the details of any financial incentive or other awards provided by base officials. It is important to understand the exact nature of the incentive so that it can be communicated in a way that properly represents the intention of officials giving it.

Public Affairs or other base personnel who are responsible for base communications should also be interviewed. These could be newspaper or newsletter publishers, on-base TV and radio studios, people who manage reader boards, and so on. You'll want to understand their requirements, deadlines, and approval processes.

4.6 Consider a Pre-Survey

A pre-survey of residents establishes a baseline of actions that people are already taking. It also gets people thinking about the behaviors you are targeting to change.

A pre-survey of residents is not essential, but if you have the resources to carry it out, it can be very useful.

A pre-survey of residents can be used in four ways. First, you can use it to design the campaign. With this approach, residents are asked about their current housing situations (appliances, thermostats, air conditioners, etc.) and which actions they are already taking. This information can be used to help identify behaviors and actions to emphasize for the campaign.

You can also use a pre-survey to gather some of the same information described previously with the focus groups. For this purpose, you would ask residents about communication channels, logos and slogans, and potential incentives.

The third use for a pre-survey is as a "pretest"—a baseline for later comparison and evaluation with a post-survey. With this approach, you compare responses about energy-use behaviors before and after the campaign to help evaluate how effective the campaign was in changing peoples' habits.

A fourth use of a pre-survey is to initiate or introduce the behaviors you are targeting for change. By asking people whether they are already doing energy-efficient things, you educate them on what those activities are and imply that such activities are somehow better or more important than others are. In this way, you actually start your campaign with the pre-survey.

If considering a pretest-type survey, remember that it is less effective if the resident turnover rate is significant or occupancy is likely to vary considerably. In these situations, many people who initially filled out the survey will not be the same population surveyed at the end, thus invalidating the comparison.

These four uses can be combined into one survey, though it may be unwieldy. The more purposes you combine into one survey, the more risk that it will be unwieldy and more complicated to analyze. Appendix C contains an example of a pre-survey for Marine Corps Air Station Yuma.

A survey expert can be valuable in helping design or advise on a survey and its implementation. Here are some general guidelines:

- Ask only questions that give you answers you need for the campaign. Don't waste survey questions on things that are nice to know, but not critical.
- If you want to group the responses by certain categories, make sure you ask the appropriate questions that will allow you to make comparisons. For example, you may want to compare responses from one-couple families with families having children, compare communities with each other, compare officer housing with enlisted housing, or compare houses with different floor plans.
- Be cautious in asking about attitudes or intentions in energy use. Studies have shown that attitudes ("How important is it for you to conserve energy in your home?") and intentions ("Do you plan to replace your furnace filter in the next two months?") are notoriously inaccurate indicators of actual behavior where energy use is concerned. Thus, even if you measured increased positive attitudes or intentions as a result of the campaign, the real mark of success is changed behaviors that led to reduced energy use.
- A printed survey or phone survey should tell residents who is conducting the survey and how their information will be used. Assure anonymity. In a printed survey, give a deadline for responding. Use incentives ("The first 100 people to respond will receive a small prize"), follow-up postcards, and other reminders to increase the total response rate.
- When developing survey questions, some general rules apply. A telephone survey should not last more than 15 minutes. Limit a printed survey to two pages at the most; one page is even better. Use simple language. Try to word questions as close-ended "check the box" alternatives, rather than asking for narrative responses. Put the most important questions up front; some people will tire out or drop out before the end. However, put demographic questions, which some people feel are sensitive, at the end. Don't ask "double-barreled" questions: "Do you use the energy-saving settings on your washer and dryer?" Don't ask questions that make people appear stupid or bad: "Do you know … ?" or "Do you leave your sprinklers on all day long?"
- Pretest your survey questionnaire with a few residents and officials before using it. Ask them to read the questionnaire and tell you what they think of it. This will help you identify any questions that are confusing, worded incorrectly, or not applicable to residents.
- Aim for a response rate of 40% for results that will be used to draw general conclusions about the base population. Feedback from a response rate of lower than 40% still is valuable for helping design and

evaluate a campaign. Nevertheless, the lower the response rate, the less representative the data and conclusions.

4.7 Identify Desired Behaviors

Each base should identify its own set of target behaviors for energy efficiency, based on house designs, climate, and other factors.

Using the results of focus groups and interviews described above, identify the actions you will be asking residents to take in the campaign. Here is a partial list of actions that may be appropriate for military housing:

- When heating a house, set back or program the thermostat 5 to 10 degrees lower at night or when leaving the house for more than four hours.
- Use air conditioners only when the in-home temperature is more than 78 degrees.
- Clean the air conditioning filter monthly.
- Use open windows as much as possible, rather than air conditioners.
- If air conditioners must be used, augment with fans rather than decreasing the thermostat temperature.
- Caulk doors and windows and install weatherstripping around doors, or request this service from the base maintenance organization.
- Wrap the water heater with insulation material.
- Adjust the water heater temperature to 120 degrees.
- Close doors and windows when heat or cooling are on.
- Keep blinds or curtains drawn in the hot part of the day.
- Make sure floor vents are not blocked by furniture or draperies.
- Use the energy-saving features on dishwashers, clotheswashers, and dryers, including “air dry” settings.
- Use cool water for washing clothes.
- Clean the dryer lint filter regularly.
- Set the refrigerator temperature to 38 degrees and the freezer temperature to 0-5 degrees.
- Close the refrigerator and freezer quickly after selecting your food item.
- Keep the coils on the refrigerator clean.
- Clean or change furnace filters monthly.
- For incandescent lights, use 60 watts or less.
- Replace incandescent light bulbs with compact fluorescent lights.
- Avoid using space heaters.
- Turn off unused lights, including outside porch or path lights, during the day.

- Install a timer on the porch light that automatically turns it off when daylight comes.
- Turn off unused appliances.
- Install solar-reflecting films or other heat-blocking materials on windows.
- Install water-restriction flow valves in showerheads and faucets.
- Close vents in unused or little-used rooms, such as laundry rooms.

Guidelines for choosing and listing actions follow.

- Make sure the actions chosen are allowable, feasible, and reasonable for your base and its house floor plans. For example, military residents are not expected to purchase their own wall insulation or double-paned windows, so those would not appear on the list. Some base housing may not have programmable thermostats; others may not have air conditioners; some fixtures may not take compact fluorescent lights.
- Choose five to ten actions. Asking people to do too many things confuses them and may appear too daunting.
- Group the actions by topic; for example, temperature, washing and drying, and lighting. Actions can also be grouped by area of the house; for example, kitchen, bathroom, laundry room, and living areas.
- In communicating the actions, list those with the greatest potential for savings first. In most cases, this will be actions related to heating and cooling, including preventing loss of heated and cooled air to the outside. Studies have shown that people typically underestimate the energy-saving potential of certain actions (insulation, for example) and overestimate the savings of others (such as turning off lights). For example, a refrigerator uses almost five times the electricity the average television uses. Thus it is important to emphasize the higher-value actions to educate people.

  Another reason to emphasize the higher-value actions is that people will be more likely to focus on them if they choose only one or two actions to carry out. At Fort Lewis, for example, the list of energy-efficiency tips was prefaced with the statement, "If you can only do one thing, it should be turning down your thermostat at night."

Emphasize the actions that contribute the most toward energy conservation, such as heating and cooling.

4.8 Select Themes, Messages, and Visuals

Based on the focus groups and interviews described above, choose themes and messages that provide a focal point on which to "hang" the campaign. Themes are the guiding communication frameworks. Examples of themes are "Comfort for military families" and "Sustaining America's natural resources."

Messages are statements that support the themes. Messages form the basis for action. Residents should relate to, believe, and be motivated by the messages. Here are some examples of messages:

- The base is being held accountable for reducing energy use.
- Every person's actions count. It takes everyone's efforts to accomplish the goal.
- Make your home more comfortable.
- Make your home a healthier environment.
- It's easy to do these things. People here will help you.
- Teach your kids good habits that will last a lifetime.
- Make a commitment to do three new things this year.
- Your neighbors, friends, and relatives are all doing this.
- Get an incentive award for smart energy use.
- Make your community the leader.
- Let's do even better than last year.

At Yuma Air Station, targeted behaviors were the focal points for weeklong messages. The first week's cartoon, electronic billboard messages and the Energy Monitor's activities related to water conservation, the next week's messages to air conditioning use, and so on.

Messages do not have to be stated explicitly in the campaign, but they underlie information materials, visuals, and activities of the campaign. Let's say, for example, that one of your messages was about how easy it is to do certain things and that others are there to help you. This message could be reaffirmed by showing children in a video doing energy-efficient actions in their homes, offering home energy visits, listing the phone numbers of energy managers who can answer questions, describing the things the family housing maintenance organization can do to make homes more energy efficient, and by holding workshops and open houses to demonstrate certain actions.

Themes and messages also form the basis for slogans. A slogan is a short, catchy phrase that is repeated throughout the campaign and usually appears with the logo or other identifying visual. Examples of slogans are "Smart Energy Use," "Save Army Energy," "Healthy Homes," and "Energy Winners."

The Energy Bandit, a sneaky bad guy, was created for a base residential energy campaign. A videotape showed residents doing things to save energy in their homes, thus outsmarting the bandit.

To raise awareness and visibility, call the campaign something with a military tone, such as Operation Energy. Groups of kids or energy auditors can be called "The E-Team" or other upbeat names.

In your communications, look for ways to adapt popular movie or book titles; TV, movie, or cartoon characters; historical and military figures; or even famous sayings. Heroes and villains are especially effective for a military setting—as long as residents are not made the bad guys! The Fort Lewis and Yuma Air Station campaign videos, for example, used a character called the Energy Bandit, a sneaky bad guy who stole energy but was ultimately conquered by energy-saving things residents did (one of the scripts

is in Appendix D). In choosing these characters and sayings, make sure the intended audience relates to them, and don't use anything that is trademarked.

Based on the theme, choose an identifying visual or logo for the campaign, and place it on all campaign materials. The logo should be simple, self-explanatory, distinguishable in black and white (as well as color), and visible when reduced to a small size. It may use a familiar landmark from the base. Be careful, however, not to infringe on logos copyrighted by other organizations or to mimic the logo of a particular command or division of the military.

DOE's Federal Energy Management Program logo for its "You Have the Power" campaigns

You can raise awareness and interest in the campaign by hosting a logo and slogan contest for residents. Or, post sample logos and slogans and have residents vote on them.

If your campaign falls under the U.S. Department of Energy's Federal Energy Management Program (FEMP), you must use their logo and slogan (a hand holding a globe, "You Have the Power") in your materials. You also need to credit the Department of Energy as a sponsor or partner. At Fort Lewis, the FEMP logo was used as a secondary visual, but the primary logo and slogan were chosen by the residents: a lightbulb with a glowing dollar sign inside it and "Smart Energy Use" (Appendix B). At MCAS Yuma, the FEMP logo and slogan were the primary visual and slogan. If you are interested in linking with FEMP, visit http://www.eren.doe.gov/femp or call (800) DOE-EREN.

Other visuals can include kids' art made into posters, cartoon strips created by residents, banners, displays, skits, videos, or anything else that is feasible and tailored to the base.

An important aspect of developing visuals is deciding how energy use and savings will be communicated to residents periodically. Regular feedback in an easy-to-understand format is critical for motivating residents and keeping them on track. Bar charts, pie charts, and other visual formats are better than numbers only. Show trends and comparisons, not just a new number each time. If you are aiming for a specific goal, consider showing progress toward the goal.

Residents usually can relate better to dollars than to energy units such as Btus or therms. If you do use energy units, put them in context. For example, it may help to say that the base has saved enough energy to "light up the Astrodome for a week" or other memorable analogy.

Using a wide variety of communication channels, and repeating information, increases the likelihood that residents will become aware of the campaign.

4.9 Choose Communication Channels

Identify the communication channels you will use in the campaign, and when and how you will use them. Choose communication channels based on what residents said in previous discussions and interviews. The channels will vary for each base. Examples of typical communication channels include

- Base newspapers
- Base newsletters

- Closed-circuit TV on base
- Training video
- Reader boards
- Posters and notices at places such as community centers, Commissary, and PX
- Banners
- Displays and exhibits for special events such as educational or patriotic fairs
- Fliers and brochures
- Information packets that newcomers receive
- Community and mayors' meetings
- Area coordinators
- Chains of command
- Social or educational groups such as Scouts, clubs, schools
- Door-to-door visits.

Using a wide variety of communication channels, and repeating the same information, increases the likelihood that residents will become aware of the campaign. In advertising, it has been calculated that people must see an ad seven to ten times before they remember it! Keep this in mind as you decide when and how to communicate.

4.10 Identify Motivators and Incentives

People value thermal comfort and resent deprivation. Emphasize how various actions improve well-being, health, and convenience for residents.

A common mistake is to assume that if people understand the need to conserve energy, believe energy conservation is important, and know what to do, they will adopt energy-efficient practices. As numerous energy-conservation studies since the 1970s have shown, these factors are not enough to change behavior. If your campaign is based solely on giving information to residents, it will almost certainly fail!

Changing peoples' energy use behaviors must go beyond one-way education to action. The campaign must address barriers to change as well as making the behaviors easy, convenient, relevant, and socially acceptable. Research and case studies reveal some factors that have proven effective in other situations. You may wish to adapt these for your campaign.

- **A positive gain, not deprivation.** People resent hardship, especially in the military where many already feel that they are making sacrifices in their living arrangements. Don't imply they must give up more to save energy. Instead, emphasize what residents GAIN from adopting certain behaviors. For example, the number-one factor in energy-related activities is thermal comfort. People resist doing things that make them feel uncomfortably cold or hot, even if they save energy by doing so. They are much more receptive to things that will improve their comfort and health, and which give them a sense of control over their environments.

Therefore, focus on activities that improve the well-being and convenience of residents. Weatherstripping and caulking, for example, reduce drafts and condensation, improving personal comfort. Clean furnace filters improve air quality and even decrease allergies by reducing airborne dirt particles. Closing curtains and blinds in the summer keeps the house cooler and keeps furniture fabric from fading. Clothes dry more quickly when lint traps are kept clean. Water heaters that are set at the proper temperature reduce the possibility of accidental scalding, especially with children in the home. Using lower-voltage lights, keeping draperies away from vents, and avoiding space heaters help prevent fires. Air-drying lightweight clothes helps prevent shrinkage and makes fabrics last longer. Compact fluorescent bulbs last for months or years before they need to be replaced.

Throughout the campaign, consider using the terms "energy efficiency" and "energy awareness" rather than conservation, which can imply imposed deprivation.

- **Personal, interactive contact.** Face-to-face, back-and-forth communication is one of the most effective motivators in energy education efforts. When people are personally confronted with an opportunity to adopt more energy-efficient behavior, as opposed to having the opportunity presented through information materials or the media, their participation rises dramatically.

  If your base has the resources, home visits are extremely effective when conducted in a positive, not punitive, way. An energy educator can go through a checklist with residents and even tour their homes, giving specific suggestions and offering help as appropriate. Follow-up visits are extremely effective in assessing progress, problem-solving, and encouraging continuing change.

  If you use this approach, make sure residents don't view it as intrusive and "big-brotherish." One way to lessen potential resentment is to have trusted leaders in the community conduct the visits. In fact, it has been shown that a personal relationship with the educator is a primary benefit. Kids can also go through checklists with their parents as part of an educational project.

- **Active involvement and commitment.** When residents decide which actions to take after talking with someone about a variety of energy choices, they are more likely to carry out those actions. It also helps when residents sign an action plan as a sign of commitment. A public commitment, such as publishing the names of residents who have pledged to undertake various actions, is more effective than a verbal commitment. Another way of public commitment is to publish ongoing energy tips from residents, using their names.

  As mentioned previously, involvement can also take the form of residents contributing ideas or actively helping design, implement, and evaluate the campaign. Commitment is increased by the "foot-in-the-door" method: If residents agree to make one small commitment at the beginning, they are more likely to make a larger commitment later.

Home visits, if viewed as helpful rather than punitive, are effective for giving specific suggestions and offering assistance. Follow-up visits can be used to assess progress, solve problems, and encourage continuing change.

Ask residents to choose certain energy-efficiency actions and sign a commitment to carry them out.

- **Demonstrated commitment by the military leadership to the comfort and health of residents**. At both Fort Lewis and MCAS YUMA, residents overwhelmingly cited energy-efficient homes as the number-one factor that makes energy conservation difficult. Many residents complained in detail about poorly weatherized windows and doors, thermostats that didn't work, and repairs that had been requested but not made. One resident said "When the Army fixes our houses, then we will care [enough to do energy-efficient things]." Responses such as these indicate that residents are less inclined to take personal action when they perceive that the military is not doing all it can to provide a reasonably comfortable home environment.

- **Feedback.** Feedback is information residents receive about actions they have already taken. In an energy campaign, feedback shows residents how much energy they have saved over certain periods of time. Feedback helps people visualize the results of their actions, which is important because these results are often invisible or difficult for residents to evaluate. Feedback is most effective when used in conjunction with a commitment to take action. For specific suggestions about how to display progress visually, see Section 4.8.

- **Incentives.** An incentive can take the form of a monetary reward or other desired outcome such as a new playground on the base. The incentive could be a portion of energy costs saved over a period of time. Use of incentives has been mixed, with most effectiveness for short-term change rather than sustained habits.

  Group incentives appear effective under certain conditions. The money should be provided to the entire group or every member of the group, not individuals who receive it in a raffle. If the group receives the money in a lump sum, all members should have the opportunity to say how the money should be allocated. The amount received must be enough to elicit behavior change. Payment should be received periodically rather than delayed for long periods of time.

  Make sure monetary incentives for energy savings are feasible. At the Fort Lewis and MCAS Yuma bases it was impossible to transfer money from the utility account to the account that directly benefits family housing residents. This situation may become more flexible as military housing becomes privatized.

- **Social interaction.** People are more likely to adopt an innovation or behavior change if they have heard about it or seen it adopted by a friend or respected member of the community. Community meetings and other events can be used to conduct focus groups that design and evaluate campaigns, and help foster exchanges of information. Community leaders can make energy efficiency a high-status activity. Service clubs can promote energy efficiency through their existing missions. Schools, Scouts, and other youth programs and events can promote educational activities that involve kids. Kids, in turn, help influence and remind their parents to use energy wisely.

- **Competition.** Competition among similar groups has been shown to motivate behavior changes. This is especially true in the military culture, which is based on competition and winning. For example, energy use of various housing areas can be compared with each other. If housing areas are architecturally and/or demographically different, energy use of various housing areas can be compared with their own use from a previous time period, or energy use-data can be normalized according to the number of people participating. Incentives can be offered to "winners" or to all those who achieve a certain goal.

  Competition—prized in the military culture—sometimes can be used to motivate behavior changes among residents.

  For competition to work, people must perceive that the comparison is fair; in other words, that groups being compared are equivalent in factors that affect energy use. In addition, as many group members as possible must be aware of where they stand in comparison with others. Individuals must feel that their actions make a difference in the entire group's outcome.

  The groups being compared must have enough pride in their group identities to motivate competition. At Fort Lewis, for example, the relatively high personnel turnover rate may have kept housing residents from establishing neighborhood bonds and thus lowered the motivation to compete against other neighborhoods, on base. At MCAS Yuma, however, many residents said they were motivated by the desire to make their entire post the most energy-efficient in the Marines. In this case, residents (with lower turnover and a smaller housing community) apparently identified strongly enough with their post to want to elevate it above other installations in their branch of the service.

- **Vivid, relevant, personalized information.** Information that is presented in a vivid form, such as a personal story involving danger or victory, is more likely to prompt action than something like a standard list of tips or numbers. If the desired behaviors are modeled, people are more likely to visualize themselves doing them. Videotapes of people doing energy-efficient things in their homes have prompted similar actions by viewers, even after one viewing.

4.11 Get the Word Out

In accordance with your schedule, produce and distribute information and use the channels of communication you've identified. Information materials may fit into several categories:

- **Campaign description.** These materials are intended to raise awareness among residents about the campaign, its incentives, their role, and the time frame. Names and phone numbers of campaign managers and resource people should be listed. Appendix B contains some examples of materials introducing the campaign.

Fliers, brochures, posters, news articles, and community meetings can be used to convey this information. It is important to get the word out to as many people as possible, as early as possible, about the campaign to motivate behavior change.

To maintain awareness despite personnel turnover, information about the campaign must be conveyed on a regular basis. For example, materials could be placed in newcomers' packets, letters could be sent to homes when families move in, or newcomers could be required to view a short video as part of their base orientation.

- **Information channels for targeted behaviors.** The desired energy-saving actions (see Section 4.7) should be conveyed in many different ways, to reinforce them and to ensure that as many people as possible become aware of them. Here are some examples of ways behaviors can be described:

  • Posters (see example in Appendix B)

  • Brochures and fliers (see Appendix B)

  • Children's art work

  • Videos where residents demonstrate the actions (see Appendix D)

  • Reader boards highlighting one action each time

  • Cartoon strips (see examples in Appendix B)

  • Refrigerator magnets, T-shirts, door hangers

  • Workshops

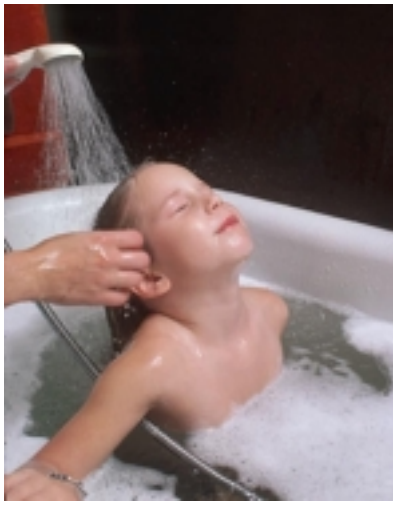
  • As part of displays and fairs

  • On a "commitment sheet" where residents check off the actions they plan to take

  • On educational worksheets where children and parents are guided through their own homes by answering questions about energy use in each room

  • Mock "tests" ("Guess which one of these appliances is the biggest energy hog?").

  Studies have shown that a particularly effective "grabber" is to convey one or more behaviors in a personal story form. The more vivid and dramatic, the better. These stories could emphasize the impacts of taking certain actions. For example, a pediatrician may be willing to speak about how she treated a child for hot water burns, which could have been prevented if the water heater was set at the proper temperature. A dad could describe how his children suffered fewer allergy symptoms after he began cleaning the furnace filter monthly. A base firefighter could describe a home fire that was caused by improper use of a space heater or high-wattage light bulbs. A teenager could brag that her job of replacing burnt-out light bulbs has all but disappeared after she talked her family into replacing the incandescent bulbs with compact fluorescent ones.



Use stories from residents to emphasize the target behaviors. Water heaters set at the proper temperature, for example, reduce the possibility of accidental scalding.

Another way to get these stories is to have residents contribute their own energy-conservation tips—and publish them with the names of the contributors. This approach highlights residents as role models while conveying the feeling that neighbors and friends are indeed making changes.

- **Progress by residents.** It is critical to give regular feedback about how well residents are doing, in comparison with a goal, if appropriate. Residents need to visualize a tangible result of their efforts to be motivated, especially in the absence of personal utility bills that typically provide this feedback to homeowners.

  This feedback can be shown in bar charts, pie charts, and other visual formats. As mentioned previously, put results in a format familiar to residents, such as dollars saved versus Btus. Appendix B shows a format that could be adapted to show progress in energy savings among various communities or neighborhoods on a base.

  Another way to show progress is to tie it to a goal that the base is working toward. For example, if residents are working toward a goal of upgrading playground equipment, you could show a picture of the equipment gradually being "filled in," representing the portion of the goal achieved so far. List the targeted behaviors at the same time progress is being shown, to reinforce the idea that these behaviors are resulting in this amount of savings.

  Again, information on progress should be shown in several different forums to help ensure visibility among as many residents as possible. These could include posters, fliers, news articles, direct mail, and door-to-door fliers handed out by energy monitors or community leaders.

- **Final results and rewards.** At the end of the campaign, or whenever awards or other incentives are given out, residents must be made aware of them. If incentives are given out periodically, conveying this to residents will help motivate continued behavior change.

  Results and rewards should be announced with some degree of fanfare and celebration. If awards are given to certain housing areas or parts of the base, it may be appropriate to have a high-level base official hand out the award at a ceremony where those residents are invited. If the base achieved a tangible award such as a playground upgrade, a plaque could be permanently placed there, engraved with words such as "New playground equipment made possible by energy savings in XYZ Base family housing, 2000." Individual, low-cost awards, such as certificates, can be given out to individuals or groups who carried out special activities to make the campaign a success, such as energy monitors, community leaders, schools, Scouts, and clubs.

  Posters, news articles, and other materials can help convey the results across the base.

4.12 Conduct Activities and Involve Residents

Visible, interactive activities such as exhibits are great for getting the word out and showing progress in base energy savings.

Visible, interactive activities help get the word out, invite participation in fun ways, and reach specific groups. Activities can claim huge amounts of time and resources, so make sure you have sufficient amounts of both before beginning. Examples of activities include the following:

- **Hosting displays or exhibits at fairs and other community events.** At Fort Lewis's Kids Fest, for example, the energy resource manager staffed an energy-education booth and handed out hundreds of "give-away" materials donated by local utilities. MCAS Yuma has made an Energy Fair a yearly event, with local utilities and the University of Arizona providing exhibits and prizes for drawings.
- **Working with education-oriented groups to target children.** Family housing residents are very attuned to the well-being of their children, and this can be capitalized on for campaigns. Sometimes the same residents who are reluctant to have energy monitors come to their houses may welcome visits from students as part of an educational project. In addition, an excited and involved child can motivate and serve as a role model for other family members, including parents. Results of the final survey at MCAS Yuma indicated a large number of housing residents surveyed (42%) chose energy-efficient behaviors because they wanted to set a good example for their children.

  Work with existing education-oriented groups whose missions involve children. Scouting groups, for example, may wish to include family energy efficiency as part of the requirements to earn certain badges. Scout leaders may also be willing to set up required community service projects that contribute to the campaign. Schools where the base's children attend may also be willing to include an energy-efficiency unit in their curricula. Day care centers for school-age children may welcome age-appropriate energy-related activities, such as art work by children that is converted into posters and used in the campaign or games featuring energy-efficient behaviors.

  Resources for working with kids on energy issues are also available from the Alliance to Save Energy. The Alliance's Green Schools project offers free lesson plans on the Internet for elementary and middle-school ages (www.ase.org/educators). The Green Schools Project is designed to reduce facility energy costs while educating students. Lesson plans include activities, games, and home energy audits that kids can do themselves.

In working with education-oriented groups, keep the following guidelines in mind:

- Have a single point of contact representing each group. This person must be willing to expend personal effort and lead others to make sure the energy-related educational projects are carried out effectively. Make sure that person is willing to get the proper approvals for any energy-related projects (school district officials, etc.).

- Be prepared to work closely with group members to prepare materials and activities. Most educational groups are extremely busy and will look to you for ideas and help. Some teachers and other leaders may not feel competent teaching about energy use and may want a prepackaged curriculum that fits with their teaching goals. Resources such as the free lesson plans from the Green Schools Project, mentioned earlier, can be very effective. Appendix E lists other resources. Most materials will need to be tailored to your particular base and situation.
- Understand the group's mission and how you fit into it. Most schools, for example, will require that children learn something from a particular activity. Thus, school officials may frown on children simply carrying fliers home, but they may be very interested in an educational unit that teaches children how to calculate "before and after" energy use in their homes.
- Make sure everyone involved understands each other's roles. For example, who will provide the educational materials? In what form? Who will tailor them to meet the group's needs? Who pays for what? Who will host activities for children? Who will provide prizes and other awards for children, if required?
- Make sure all activities are age-appropriate. Older children, for example, may enjoy participating in neighborhood energy audits with adult energy monitors, whereas younger children may prefer going through a simple checklist with their parents. The leaders of each group can advise you on what is age-appropriate for their group of children.

Work with existing education-oriented groups to involve children. Children can motivate and serve as role models for other family members.

◆ **Using October, Energy Awareness Month, to highlight the campaign**. Examples of activities that fit well with this theme include the following:

- Contests and giveaways
- Fairs
- Awards for progress to date
- Open houses in various neighborhoods where energy-efficient elements are highlighted (and snacks are given out!)
- Community workshops demonstrating certain activities, such as how to program a thermostat and when to use the various styles of compact fluorescent lights, with lights given out as door prizes
- Special activities for kids.

4.13 In Summary: Designing and Executing a Campaign

In designing and executing a campaign, consider the following steps:

◆ Establish **goals**, or the desired outcomes. A typical goal is to get residents to modify their habits to reduce energy use by a certain amount over a certain time period.

- Establish **objectives** to achieve goals. Typical objectives are to increase the percent of people who engage in certain measurable behaviors.
- Set a **budget** that covers all labor, materials, production, distribution, activities, and monetary incentives, if any. Get the budget approved early.
- Set a **schedule** to keep the work on track and to include time-specific events. The schedule may be influenced by the availability of energy-use data and the time required for behavior change.
- Understand your base setting by **talking with residents and officials**. Use input from them to design a campaign that is tailored to the site. Use focus groups and interviews to learn what residents are interested in and willing to do, allowed to do, want to participate in, and how they want information communicated. Talk with base communication personnel to learn about their requirements, deadlines, and approval processes.
- Consider a **pre-survey**. A pre-survey of residents can be used to design the campaign; select logos, slogans, and incentives; form a baseline for later comparison and evaluation; and begin introducing the target actions. Design surveys using accepted practices for data gathering and wording. Pretest the survey with residents before administering it.
- Identify **desired behaviors**. Choose actions that are allowable, feasible, and reasonable for the base and the houses' floor plans. Emphasize the actions with the greatest potential for savings.
- Select **themes, messages, and visuals**. Themes are the guiding communication frameworks. Messages are statements that support the themes and provide the basis for action. A slogan is a short, catchy phrase that often appears with an identifying visual or logo. All visuals should be in familiar, easy-to-understand formats.
- Choose **communication channels** that residents have said they pay attention to. Use a variety of channels and repeat information for best coverage.
- Identify **motivators and incentives** to prompt behavior change. Giving out information is not enough. Emphasize gain rather than deprivation—health, well-being, and convenience. Use personal, interactive contact such as home visits. Encourage written commitment by residents. Use feedback to show residents how much energy they have saved over time. Consider monetary or other tangible rewards. Work through existing social groups. Foster competition. Make information vivid, relevant, and personalized.
- Get the word out**.** Produce and distribute **information** about the campaign itself, the targeted behaviors, progress, and final results and rewards.
- Conduct **activities** and **involve residents**. Use interactive activities to share information, invite participation, and reach specific groups.

When working with educational groups, understand their mission, clarify each others' roles, and be prepared to provide tailored information materials.

5.0 Evaluating and Reporting on the Campaign

Evaluating the effectiveness of a campaign involves measuring the results against the goals. Evaluation enables you to understand the extent to which the expected results were achieved. Perhaps more importantly, evaluation should also reveal what elements of the campaign were effective and which were not—in other words, what worked, what didn't, and why? The findings can be used for mid-course correction or to design future efforts.

5.1 Mid-Course Evaluation

Persuading people to change their habits is challenging, because so many things influence peoples' behaviors. Thus, even if you've done your homework to tailor a campaign to your base, some surprises are bound to arise along the way. That's where a mid-course evaluation becomes valuable.

A few telephone calls to responsive residents can be used to evaluate a campaign that is under way. Use feedback to make mid-course corrections.

If you wait until the campaign ends before evaluating it, you may discover that certain aspects of your approach were not effective. By that time, however, you've lost the opportunity to make changes or corrections. A mid-course evaluation allows you to fine-tune the campaign in progress to better achieve the desired outcomes. In addition, you can shift resources to areas that are working well, while eliminating or cutting back on activities that are less effective.

A mid-course evaluation need not be expensive or time-consuming. Several strategic phone calls, personal interviews, or a couple of informal discussions with a group of community members can reveal much about what's working, what's not, and what needs to be done differently.

If you are using phone or face-to-face interviews, start with your established contacts—the people who provided input to design the campaign or leaders who are contributing to its implementation. Ask each person if there are others to whom they can refer you who would be willing to answer a few questions. If possible, try to get a diverse group of respondents—men, women, and children from different kinds of houses or different locations on the base. Assure them that their responses will help improve the campaign and that no names will be used.

A mid-course correction should provide answers to the following questions:

- Are residents aware of the key elements of the campaign, including incentives, if any?
- Where are they getting their information about the campaign?
- Do they know what they're being asked to do to use energy efficiently?

Other Sections

The *Revised Handbook for Promoting Behavior-Based Energy Efficiency in Military Housing* is published in three parts:

Revised Handbook for Promoting Behavior-Based Energy Efficiency in Military Housing, Sections 1-4.

Revised Handbook for Promoting Behavior-Based Energy Efficiency in Military Housing, Sections 5-7.

Revised Handbook for Promoting Behavior-Based Energy Efficiency in Military Housing, Appendices.